



NON-TITLE V TECHNICAL SUPPORT DOCUMENT

PERMIT NUMBER:	140062	App. ID(s):	404741
BUSINESS NAME:	Hickman's Egg Ranch, Inc.	Revision(s):	0.0.0.0
SOURCE TYPE:	Poultry Egg Production	Revision Type(s):	New permit
PERMIT ENGINEER:	LiSa Kon	Date Prepared:	10/20/2014

BACT: No	MACT: Yes	NSPS: Yes	SYNTH MINOR: No	AIRS: No
DUST PLAN REQUIRED:	No	DUST PLAN RECEIVED:	N/A	
O&M PLAN REQUIRED:	No	O&M PLAN RECEIVED:	No	
PORTABLE SOURCE:	No	SITE VISIT:	Waived	

PROCESS DESCRIPTION:

This facility houses chickens for the production of eggs for human consumption. The egg producing establishment is located on an agricultural farm land. Each of the fourteen barns at the site is ventilated by a system of fans. Each barn is equipped with a diesel fuel emergency generator engine. In the event of line power failure, the emergency generator engines will provide power to the fans. Pages 3 and 4 of this document contain pictures of the establishment. Diagram A in page 2 shows the site diagram.

The facility is regulated for fuel combustion emissions from the emergency generator engines.

PERMIT HISTORY:

Date Received	Revision Number	Description
09/26/2014	0.0.0.0	MCAQD received permit application.

PURPOSE FOR APPLICATION:

New permit.

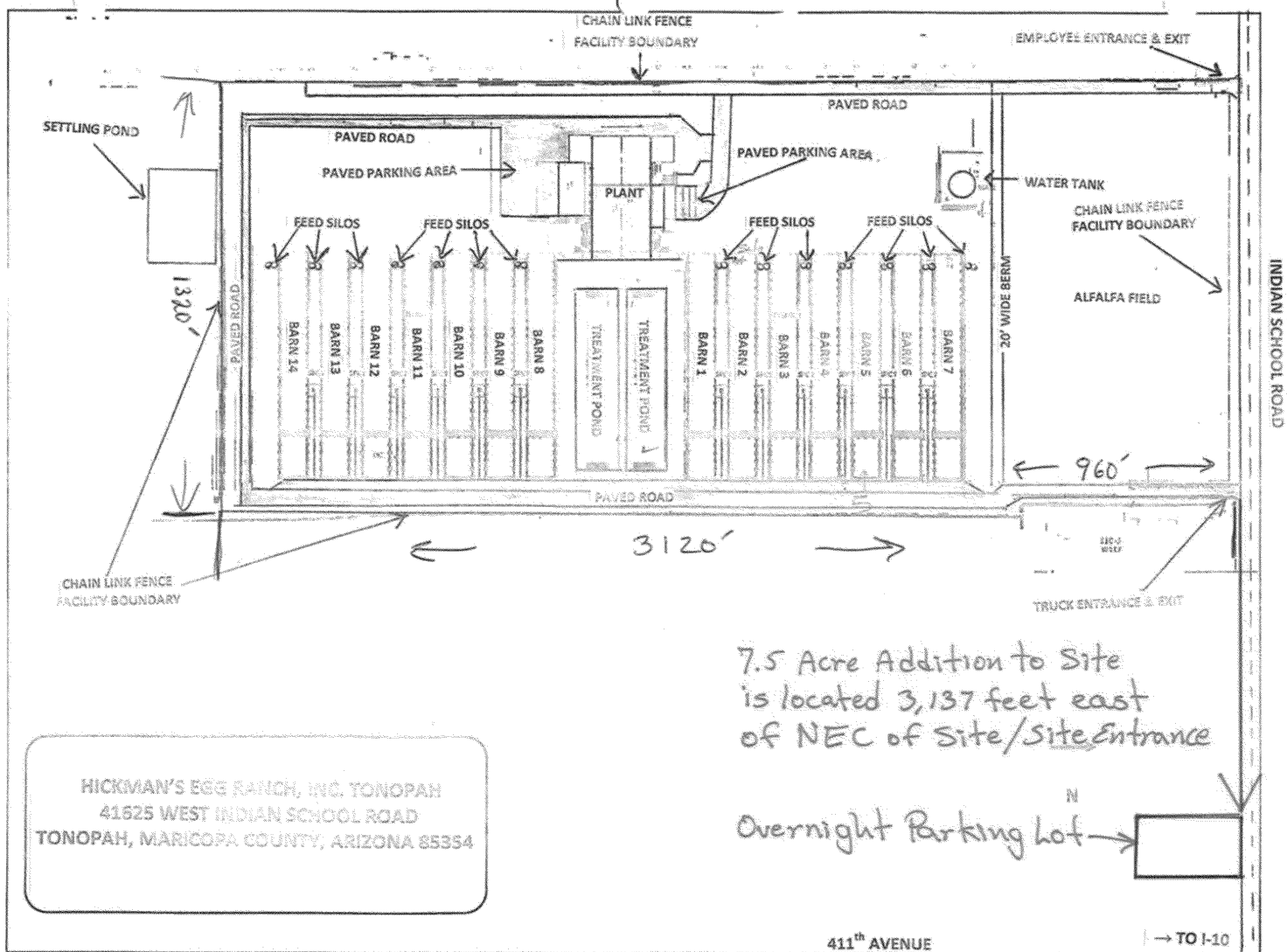
The facility is not eligible to operate under a General Permit Permit for Stationary Emergency Internal Combustion Engines (ICE) because the aggregate power rating of all the stationary ICE on the site exceeded 2,500 horsepower. In order to be eligible, the maximum aggregate power rating of all stationary ICE on the site must be 2,500 horsepower or less.

A. APPLICABLE COUNTY REGULATIONS:

- Rule 100: General Provisions and Definitions
- Rule 200: Permit Requirements
- Rule 220: Non-Title V Permit Provisions
- Rule 280: Fees: Table C: Emergency Internal Combustion Engine
- Rule 300: Visible Emissions
- Rule 320: Odor and Gaseous Air Contaminants
- Rule 324: Stationary Internal Combustion (IC) Engines

The Permittee is not subject to Rule 310-Fugitive Dust From Dust Generating Operations. Rule 310 Section 103.1 exempts farm cultural practices.

Diagram A: Site layout



These pictures were submitted together with the new permit application.



Figure 1: Two of the standby engines at the facility.

Silos are located between
the barns



Figure 2: Silos are located in between the barns



Figure 3: One of the two treatment ponds. Structure to the left of the pond is Barn #1.



Figure 4: Another view of a barn.

Emergency generator
engine





Figure 5: Barn structure.

B. APPLICABLE FEDERAL REGULATIONS:

- 1) The 1528 h.p. emergency generator engine is subject to 40 CFR Part 63, Subpart ZZZZ.
Any stationary, emergency reciprocating internal combustion (IC) emergency engines including compression (CI) and spark ignition (SI) engines, where: (Diesel fueled) compression ignition (CI) emergency engines and (Natural gas fueled) spark ignition (SI) emergency engines constructed or reconstructed prior to 2006 will be subjected to 40 CFR Part 63, Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating IC Emergency Engines.

- 2) The following emergency generator engines are subject to NSPS 40 CFR Part 60, Subpart IIII.

Engine description	h.p. rating	Number of units	Fuel type
Cummins, Model: QSL9-G7-NR3, Mfg'd: 2014	464	10	Diesel
Cummins, Model: QSL9-G2-NR3, Mfg'd: 2014	364	1	Diesel

- 3) Non-Applicable Federal Regulations

The chicken feed (grain) storage silos are not subject 40 CFR 60 Subart DD (Standards of Performance for Grain Elevators). Grain storage at the facility does not meet the definition of grain terminal elevator or grain storage elevator provided in 40 CFR 60.301. Grain terminal elevators do not include those located at livestock feedlots.

C. AIR POLLUTION CONTROL EQUIPMENT/EMISSION CONTROL SYSTEM(s):

The facility is not required to maintain a dust control plan; exempt from Rule 310.

Rule 310-Fugitive Dust From Dust Generating Operations, Section 103.1 exempts farm cultural practices. For good neighbor practice, the Permittee did submit a Rule 310 DCP for the overnight parking lot at the facility.

D. EMISSIONS:

1) Emergency Engines

Fuel combustion emissions from the diesel powered emergency engines consist of carbon monoxide, nitrogen oxides, sulfur dioxide, volatile organic compounds and particulate matter. Emissions calculation is based on 500 operating hours per twelve consecutive month period. On the permit application, the Permittee stated that each of the engine operates no more than 52 hours per year; the operating hours are strictly for weekly testing. See Table D-1 for the list of emission calculation worksheets and sources of emission factors. The following calculation worksheets are in Appendix A.

Table D-1

Worksheet	Sources of Emissions Description	Sources of Emission factors
1	1,528 h.p. engine	Uncontrolled emission factors for the diesel engines > 600 HP are from U.S. EPA AP-42, Table 3.4-1.
2	11 units of Tier 3 engines	Uncontrolled emission factors for NO _x , CO & PM are from Table 1 40 CFR 60 Subpart IIII. Uncontrolled emission factors for SO _x and VOC are from US EPA AP-42, Table 3.3-1 for SO _x & VOC .

The table below shows facility wide allowable emissions.

Facility Wide Annual Emissions						
Pollutants	1528 h.p. engine	NSPS engines	Total		BACT threshold	
	lbs/yr	lbs/yr	*lbs/day	lbs/yr	lbs/day	lbs/yr
	Fr. Worksht 1	Fr. Wrksht 2				
CO:	4,202	14,342		18,544	550.0	200,000.0
NO_x:	18,336	16,548		34,884	150.0	50,000.0
SO_x:	310	5,130		5,440	150.0	50,000.0
PM₁₀:	535	828		1,363	85.0	30,000.0
PM:	535	828		1,363	150.0	50,000.0
VOC:	539	6,180		6,719	150.0	50,000.0

* The daily trigger of Best Available Control Technology (BACT) has been exempted



140062_0.0.0.0 calc
sheet .xls

E. HAP EMISSION IMPACTS:

Based on the information provided in the permit application, the facility emits insignificant amount of HAPs; therefore, SCREEN modeling was not performed per the Department's HAPs policy.

F. PERFORMANCE TESTING:

There is no equipment at the facility that requires performance testing.

APPENDIX A

Worksheet 1

Uncontrolled Large Diesel Industrial Engines (Emergency Generators > 600 HP)																																		
<u>Input rating of equipment, HP</u>																																		
Emissions factors taken from AP-42, Table 3.4-1																																		
Emission Factors for Large Stationary Diesel and All Stationary Dual-Fuel Engines																																		
Equipment	HP Rating	Annual Operating Hours																																
Kohler	1,528	500																																
TOTAL HP	1,528	500																																
<u>Emission factors for diesel:</u>			<u>Constants:</u>																															
CO:	0.00550	lb/hp-hr	Heating Value =	137,000	BTU/gallon of diesel fuel																													
NOx:	0.02400	lb/hp-hr	500	hours to determine Exempt Status																														
SOx ¹ :	0.00040	lb/hp-hr	1 hp =	2545	BTU/hr																													
PM10:	0.00070	lb/hp-hr	1 hp =	0.746	kW																													
PM:	0.00070	lb/hp-hr	1 kW =	1.34	hp																													
VOC:	0.00071	lb/hp-hr																																
<u>Emissions:</u>																																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 20%; text-align: center;">*Daily Emissions</th> <th style="width: 20%;"></th> <th style="width: 30%; text-align: center;">Yearly Emissions</th> </tr> </thead> <tbody> <tr> <td>CO:</td> <td>lbs</td> <td></td> <td>4202 lbs</td> </tr> <tr> <td>NOx:</td> <td>lbs</td> <td></td> <td>18336 lbs</td> </tr> <tr> <td>SOx:</td> <td>lbs</td> <td></td> <td>310 lbs</td> </tr> <tr> <td>PM10</td> <td>lbs</td> <td></td> <td>535 lbs</td> </tr> <tr> <td>PM:</td> <td>lbs</td> <td></td> <td>535 lbs</td> </tr> <tr> <td>VOC:</td> <td>lbs</td> <td></td> <td>539 lbs</td> </tr> </tbody> </table>								*Daily Emissions		Yearly Emissions	CO:	lbs		4202 lbs	NOx:	lbs		18336 lbs	SOx:	lbs		310 lbs	PM10	lbs		535 lbs	PM:	lbs		535 lbs	VOC:	lbs		539 lbs
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*The daily trigger of Best Available Control Technology (BACT) has been exempted for the emergency engines.

Worksheet

2

Uncontrolled Large Diesel Industrial Engines (Emergency Generators > 600 HP)						
Equipment	HP Rating	Annual Operating Hours	Comments:	1 lb=	453.6 g	
	364	500	1 unit, rated at 364			
	4,640	500	10 units, each rated at 464 h.p.			
				Per EPA CFR 40 Tier 3 emission data		
					g/hp-hr	lbs/hp-hr
				CO	2.6	0.00573
				NOx + HC	3	0.00661
				PM	0.15	0.00033
TOTAL HP	5,004	1,000				
<u>Emission factors for diesel:</u>			<u>Sources of Emission Factors</u>			
CO:	5.73E-03	lb/hp-hr	Per EPA CFR 40 Tier 3 emission data			
NOx:	6.61E-03	lb/hp-hr	Per EPA CFR 40 Tier 3 emission data			
SOx:	2.05E-03	lb/hp-hr	Emissions factors taken from AP-42, Table 3.3-1			
assumption: PM=PM 10	3.31E-04	lb/hp-hr	Per EPA CFR 40 Tier 3 emission data (assumption: PM =PM10)			
VOC:	2.47E-03	lb/hp-hr	Emissions factors taken from AP-42, Table 3.3-1			
<u>Emissions:</u>						
*Daily Emissions			Yearly Emissions			
CO:		lbs			14342	lbs
NOx:		lbs			16548	lbs
SOX:		lbs			5130	lbs
PM ₁₀		lbs			828	lbs
VOC:		lbs			6180	lbs
*The daily trigger of Best Available Control Technology (BACT) has been exempted for the emergency engines.						



NON-TITLE V COMPLETENESS DETERMINATION CHECKLIST

Items 1-15 Front page: Items 1 to 15 (14 for Renewals) must be completed.

Notes to engineer:

- For renewal applications the source must either answer 'No' to questions 2-5 or submit an application for a permit modification.
- Item 8: Many applicants do not know the SIC code or NAICS code for their industry. For a new application the code can be obtained by doing an on-line search. <http://www.osha.gov/pls/imis/sicsearch.html>
- Items 5, 7 and 14: These may be the same for many applicants.

Complete: ☒ Incomplete: ☐

Item 16: A simple site diagram has been included, preferably on a standard size paper. Detailed blueprints or construction drawings are not required.

Complete: ☒ Incomplete: ☐ N/A: ☐

Item 17: A simple process flow diagram on a standard size paper is preferred. A process flow diagram may not be needed for some small businesses.

Complete: ☐ Incomplete: ☐ N/A: ☒

Item 18: An O&M plan is required only for a control device. An O&M plan is not required for a spray booth. Instead of including the O&M plan with the application, an applicant may submit it after receiving the permit.

Complete: ☐ Incomplete: ☐ N/A: ☒

Item 19: A dust control plan, if required, must accompany the permit application. The plan will be reviewed and approved by the dust compliance group.

Complete: ☐ Incomplete: ☐ N/A: ☒

Item 20: The applicant needs to complete only those sections of the permit application that are applicable.

Complete: ☒ Incomplete: ☐ N/A: ☐

Notes to engineer:

- Concerning Section Z: Many applicants will not be able to perform these engineering calculations. We will accept the permit application with a blank Section Z.

Instructions for completing Sections A, B, C, D, E-1, E-2, F, G, H, I, J, K-1, K-2, K-3, K-4, L, M, X-1, X-2, Y and Z of the permit application are included at the beginning of each section and are self-explanatory.

In general, a material safety data sheet (MSDS) is required for each chemical used, stored or processed at the facility. Exceptions are for very common materials, such as gasoline, diesel, acetone, etc.

Business name: Hickman's Egg Ranch Inc.

Permit number: 140062 Rev 0.0.0.0

Completeness review completed.

Application determined to be:

Complete: ☒ Incomplete: ☐

Permit Engineer: LiSa Kon

Date: 10/21/2014